

AMENDMENT

IN THE CLAIMS:

1. (Currently Amended) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

 an elongated flexible tubular structure of woven seamless fabric;

 means for rendering said tubular structure impervious;

 said tubular structure having a front end and a rear end;

 means for sealing said front end and said rear end;

 means for filling and emptying said vessel of cargo;

 and at least one flexible longitudinal stiffening beam positioned along a length of said tubular structure for dampening undesired oscillation of said tubular structure, said stiffening beam being integral with said tubular structure and subject to pressurization and depressurization by selective inflation and deflation with a pressurized gas or liquid independent of a pressure of the vessel.
2. (Original) The vessel in accordance with claim 1 which includes a plurality of longitudinal stiffening beams.
3. (Original) The vessel in accordance with claim 2 which includes at least two longitudinal stiffening beams positioned equidistant from each other on the tubular structure.
4. (Previously presented) The vessel in accordance with claim 3, further comprising a third longitudinal stiffening beam positioned intermediate to said at least two longitudinal stiffening beams, with said third beam being so positioned as to provide ballast when filled, and wherein said longitudinal stiffening beams are fillable.

5. (Original) The vessel in accordance with claim 2 wherein said stiffening beams are continuous.

6. (Original) The vessel in accordance with claim 2 wherein said stiffening beams are made in sections.

7. (Previously Presented) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:
an elongated flexible tubular structure of woven seamless fabric;
means for rendering said tubular structure impervious;
said tubular structure having a front end and a rear end;
means for sealing said front end and said rear end;
means for filling and emptying said vessel of cargo;
and at least one flexible longitudinal stiffening beam positioned along a length of said tubular structure for dampening undesired oscillation of said tubular structure, said stiffening beam being integral with said tubular structure and subject to pressurization and depressurization and which includes at least one flexible circumferential stiffening beam positioned about a circumference of the tubular structure and integrally formed therewith and being subject to pressurization and depressurization.

8. (Previously presented) The vessel in accordance with claim 7 which includes plurality of said circumferential stiffening beams.

9. (Original) The vessel in accordance with claim 7 wherein said at least one flexible circumferential stiffening beam is continuous.

10. (Original) The vessel in accordance with claim 7 wherein said at least one flexible circumferential stiffening beam is in sections.

11. (Currently Amended) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

- an elongated flexible tubular structure of woven seamless fabric;
- means for rendering said tubular structure impervious;
- said tubular structure having a front end and a rear end;
- means for sealing said front end and said rear end;
- means for filling and emptying said vessel of cargo;
- and at least one flexible longitudinal stiffening beam positioned along a length of said tubular structure for dampening undesired oscillation of said tubular structure, said stiffening beam being integral with said tubular structure and subject to pressurization and depressurization

and wherein ~~the means for sealing an end of the tubular structure comprises collapsing the end upon itself~~ said front end and said rear end are collapsed upon themselves into a flatten, folded structure, ~~sealing it and securing it~~ sealed and secured mechanically.

12. (Original) The vessel in accordance with claim 1 wherein the means for sealing an end of the tubular structure comprises an end cap made of rigid material secured to a perimeter of the tubular structure defining its circumference so as to evenly distribute forces thereon.

13. (Original) The vessel in accordance with claim 11 which includes providing a pin seam at an end so as to allow the coupling of a tow bar or another vessel thereto.

14. (Currently Amended) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

- an elongated flexible tubular structure of woven seamless fabric;
- means for rendering said tubular structure impervious;
- said tubular structure having a front end and a rear end;

means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo;

and at least one flexible longitudinal stiffening beam positioned along a length of said tubular structure for dampening undesired oscillation of said tubular structure, said stiffening beam being integral with said tubular structure and subject to pressurization and depressurization and wherein ~~the means for sealing an end includes collapsing, folding, and sealing an end of the tubular structure~~ said front end and said rear end are collapsed, folded and sealed such that the width of the collapsed and folded ~~end is~~ front end and rear end are approximately that of the diameter of the tubular structure.

15. (Original) The vessel in accordance with claim 14 which includes a rigid tongue member which is contoured to match the end of the tubular structure and to which the end of the tubular structure is sealed.

16. (Original) The vessel in accordance with claim 15 wherein the means for emptying and filling the cargo is located on the tongue member.

17. (Previously Presented) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

an elongated flexible tubular structure of woven seamless fabric;

means for rendering said tubular structure impervious;

said tubular structure having a front end and a rear end;

means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo;

and at least one flexible longitudinal stiffening beam positioned along a length of said tubular structure for dampening undesired oscillation of said tubular structure, said stiffening

beam being integral with said tubular structure and subject to pressurization and depressurization and wherein the tubular structure is pod shaped having at least one end which is collapsed and sealed and includes a vertical flexible stiffening beam at the one end, which is subject to pressurization and depressurization.

18. (Original) The vessel in accordance with claim 1 wherein the tubular structure is woven with fiber reinforcements with the weave used taken from the group consisting essentially of: plain weave (1x1); basket weaves including 2x2, 3x3, 4x4, 5x5, 6x6, 2x1, 3x1, 4x1, 5x1, 6x1; twill weaves including 2x2, 3x3, 4x4, 5x5, 6x6, 2x1, 3x1, 4x1, 5x1, 6x1; and satin weaves including 2x1, 3x1, 4x1, 5x1 and 6x1.

19. (Original) The vessel in accordance with claim 18 wherein the fiber reinforcements are made of a material taken from the group consisting essentially of: nylon, polyesters, polyaramids, polyolefins and polybenzoxazole.

20. (Original) The vessel in accordance with claim 1 wherein the tubular structure is woven with fiber reinforcements which are made of a material taken from the group consisting essentially of: nylon, polyesters, polyaramids, polyolefins and polybenzoxazole.

21. (Original) The vessel in accordance with claim 1 wherein said means for rendering said tubular structure impervious includes a coating material on the fabric on one or both sides thereof.

22. (Original) The vessel in accordance with claim 21 wherein said coating material is taken from the group consisting essentially of: polyvinyl chloride, polyurethane, synthetic and natural rubbers, polyureas, polyolefins, silicone polymers, acrylic polymers or foam derivatives thereof.

23. (Original) The vessel in accordance with claim 19 wherein said means for rendering said tubular structure impervious includes a coating material on the fabric on one or both sides thereof.

24. (Original) The vessel in accordance with claim 23 wherein said coating material is taken from the group consisting essentially of: polyvinyl chloride, polyurethane, synthetic and natural rubbers, polyureas, polyolefins, silicone polymers, acrylic polymers or foam derivatives thereof.

25. (Original) The vessel in accordance with claim 1 wherein the means for rendering the tubular structure impervious includes weaving the tubular structure with at least two materials, one being a reinforcing fiber, the other being a low melting fiber or low melting component of the reinforcing fiber such that a processing thereof causes the low melting fiber or component to fill the void in the fabric.

26. (Previously presented) The vessel in accordance with claim 19 wherein the means for rendering the tubular structure impervious includes weaving the tubular structure with at least two materials, one being a fiber reinforcement, the other being a low melting fiber or low melting component of the fiber reinforcement such that a processing thereof causes the low melting fiber or component to fill a void in the fabric.

27. (Previously Presented) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

- an elongated flexible tubular structure of woven seamless fabric;
- means for rendering said tubular structure impervious;
- said tubular structure having a front end and a rear end;
- means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo;

and at least one flexible longitudinal stiffening beam positioned along a length of said tubular structure for dampening undesired oscillation of said tubular structure, said stiffening beam being integral with said tubular structure and subject to pressurization and depressurization and which includes at least two vessels positioned in a side by side relationship, a plurality of beam separators positioned between and coupled to said two vessels, said plurality of beam separators being made of flexible material and subject to pressurization and depressurization.

28. (Original) The vessel in accordance with claim 27 wherein said beam separators are made of a woven material.

29. (Currently Amended) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

an elongated flexible tubular structure of woven seamless fabric;

means for rendering said tubular structure impervious;

said tubular structure having a front end and a rear end;

means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo; and

means for reinforcing the tubular structure by weaving in integrally as part of the fabric thereof reinforcement elements at predetermined intervals along a longitudinal length of the tubular structure; and

wherein said reinforcing means further ~~comprises weaving in integrally as part of the fabric reinforcing elements~~ comprises reinforcing elements that are woven in integrally as part of the fabric at predetermined intervals along a circumference of the tubular structure.

30. (Cancelled).

31. (Original) The vessel in accordance with claim 29 wherein the reinforcing element is taken from the group consisting essentially of: yarns of larger size than yarns that make up the majority of the tubular structure, yarns of higher specific strength than yarns that make up the majority of the tubular structure, rope and braid.

32. (Previously presented) The vessel in accordance with claim 29 wherein the reinforcing element along a longitudinal length and along a circumference of the tubular structure is taken from the group consisting essentially of: yarns of larger size than yarns that make up the majority of the tubular structure, yarns of higher specific strength than yarns that make up the majority of the tubular structure, rope and braid.

33. (Currently Amended) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

an elongated flexible tubular structure of woven seamless fabric;

means for rendering said tubular structure impervious;

said tubular structure having a front end and a rear end;

means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo; and

means for reinforcing the tubular structure by weaving in integrally as part of the fabric thereof reinforcement elements at predetermined intervals along a longitudinal length of the tubular structure; and wherein ~~the means for sealing an end of the tubular structure comprises collapsing the end upon itself~~ said front end and said rear end are collapsed upon themselves into a flatten, folded structure, sealing it and securing it sealed and secured mechanically.

34. (Original) The vessel in accordance with claim 29 wherein the means for sealing an end of the tubular structure comprises an end cap made of rigid material secured to a perimeter of the tubular structure deafering its circumference so as to evenly distribute forces thereon.

35. (Original) The vessel in accordance with claim 33 which includes providing a pin seam at an end so as to allow the coupling of a tow bar or another vessel thereto.

36. (Currently Amended) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

an elongated flexible tubular structure of woven seamless fabric;

means for rendering said tubular structure impervious;

said tubular structure having a front end and a rear end;

means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo; and

means for reinforcing the tubular structure by weaving in integrally as part of the fabric thereof reinforcement elements at predetermined intervals along a longitudinal length of the tubular structure; and wherein ~~the means for sealing an end includes collapsing, folding, and sealing an end of the tubular structure~~ said front end and rear end are collapsed, folded and sealed such that the width of the collapsed and folded ~~end is~~ front end and rear end are approximately that of the diameter of the tubular structure.

37. (Original) The vessel in accordance with claim 36 which includes a rigid tongue member which is contoured to match the end of the tubular structure and to which the end of the tubular structure is sealed.

38. (Original) The vessel in accordance with claim 37 wherein the means for emptying and filling the cargo is located on the tongue member.

39. (Previously presented) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

an elongated flexible tubular structure of woven seamless fabric;

means for rendering said tubular structure impervious;

said tubular structure having a front end and a rear end;

means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo; and

means for reinforcing the tubular structure by weaving in integrally as part of the fabric thereof reinforcement elements at predetermined intervals along a longitudinal length of the tubular structure; and wherein the tubular structure is pod shaped having at least one end which is collapsed and sealed and includes a vertical flexible stiffening beam at the one end, which is subject to pressurization and depressurization.

40. (Original) The vessel in accordance with claim 29 wherein the tubular structure is woven with fiber reinforcements with the weave used taken from the group consisting essentially of: plain weave (1x1); basket weaves including 2x2, 3x3, 4x4, 5x5, 6x6, 2x1, 3x1, 4x1, 5x1, 6x1; twill weaves including 2x2, 3x3, 4x4, 5x5, 6x6, 2x1, 3x1, 4x1, 5x1, 6x1; and satin weaves including 2x1, 3x1, 4x1, 5x1 and 6x1.

41. (Original) The vessel in accordance with claim 40 wherein the fiber reinforcements are made of a material taken from the group consisting essentially of: nylon, polyesters, polyaramids, polyolefins and polybenzoxazole.

42. (Original) The vessel in accordance with claim 29 wherein the tubular structure is woven with fiber reinforcements which are made of a material taken from the group consisting essentially of: nylon, polyesters, polyaramids, polyolefins and polybenzoxazole.

43. (Original) The vessel in accordance with claim 29 wherein said means for rendering said tubular structure impervious includes a coating material on the fabric on one or both sides thereof.

44. (Previously presented) The vessel in accordance with claim 43 wherein said coating material is taken from the group consisting essentially of: polyvinyl chloride, polyurethane, synthetic and natural rubbers, polyureas, polyolefins, silicone polymers, acrylic polymers or foam derivatives thereof.

45. (Original) The vessel in accordance with claim 41 wherein said means for rendering said tubular structure impervious includes a coating material on the fabric on one or both sides thereof.

46. (Cancelled).

47. (Original) The vessel in accordance with claim 29 wherein the means for rendering the tubular structure impervious includes weaving the tubular structure with at least two materials, one being a reinforcing fiber, the other being a low melting fiber or low melting component of the reinforcing fiber such that a processing thereof causes the low melting fiber or component to fill the void in the fabric.

48. (Cancelled).

49. (Withdrawn) A method of coating an elongated flexible tubular structure of woven seamless fabric which has an inside and an outside with said tubular structure having a length greater than two hundred feet, comprising the steps of:

weaving a fabric to create the elongated flexible tubular structure having open ends;

inserting a liner on the inside of the tubular structure which prevents the inside of the tubular structure from adhering together;

sealing the open ends of the tubular structure;
coating the outside of the tubular structure;
curing the coating to the extent that the tubular structure can be inflated;
removing the liner from the tubular structure; and
inflating the tubular structure.

50. (Withdrawn) A method in accordance with claim 49 which includes the step of coating the inside of the tubular structure after the outside is coated.

51. (Withdrawn) A method of coating an elongated flexible tubular structure of woven seamless fabric which has an inside and an outside with said tubular structure having a length greater than two hundred feet, comprising the steps of:

weaving a fabric to create the elongated tubular structure having open ends;
coating the outer surface with a material that has a peeling mode of failure;
sealing the open ends of the tubular structure; and
inflating the tubular structure so as to separate any portions of the inside of the tubular structure that adhered together as a result of the coating passing through from the outside to the inside.

52. (Withdrawn) A method in accordance with claim 51 which includes the step of coating the inside of the tubular structure after the outside is coated.

53. (Withdrawn) A method of coating an elongated flexible tubular structure of woven seamless fabric which has an inside and an outside with said tubular structure having a length greater than two hundred feet, comprising the steps of:

weaving a fabric to create the elongated flexible tubular structure having open ends;

providing means for preventing the inside of the tubular structure from being in contact with itself during coating; and

coating either the inside or the outside of the tubular structure.

54. (Withdrawn) A method in accordance with claim 53 which includes the step of coating both the inside and the outside of the tubular structure.

55. (Withdrawn) A method in accordance with claim 53 which includes the step of weaving the fabric in such a manner that it has a low permeability to air; sealing the open ends and inflating the tubular structure to prevent the inside from being in contact with itself during coating.

56. (Withdrawn) A method in accordance with claim 53 wherein the means for preventing comprises scaffolding, inflated arches or inflated bladder or bladders positioned inside the tubular structure.

57. (Withdrawn) A method in accordance with claim 53 wherein the means for preventing comprises flexible stiffening beams which are woven integral with the tubular structure which are pressurized.

58. (Withdrawn) A method of fabricating an impervious elongated flexible tubular structure of woven seamless fabric which has an inside and an outside with said tubular structure having a length greater than two hundred feet, comprising the steps of:

weaving a fabric to create the elongated flexible tubular structure having open ends;

weaving as part of its fabric, a low melt fiber or component thereof;

providing a device that applies heat and pressure to the fabric to cause the low melt fiber or component thereof to melt and create a structure in which the voids in the fabric are filled; and

preventing the inside from adhering to itself until the structure so formed has set.

59. (Withdrawn) A method in accordance with claim 58 wherein the device that applies heat and pressure comprises:

a first section having a heating member and magnet member and a means for moving said first section;

a second section having a heating member and magnet member and means for moving said second member; and

wherein said first section is positioned on the inside of the tubular structure, said second section being positioned on the outside of the tubular structure and opposite said first section such that the fabric passes therebetween which is subject to heat from the heating members and pressure caused by the magnets pulling the section together whilst keeping the section in position.

60. (Withdrawn) A method in accordance with claim 59 wherein the device includes means for preventing the fabric from sticking to the sections which comprises a non-stick surface contemporaneous with the heating elements.

61. (Withdrawn) A method in accordance with claim 60 wherein the non-stick surface comprises a non-stick belt that moves contemporaneously with the sections.

62. (Original) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

an elongated flexible tubular structure of woven seamless fabric;

means for rendering said tubular structure impervious;

said tubular structure having a front end and a rear end;

means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo; and

wherein the means for sealing the from end includes collapsing, folding, and sealing the front end of the tubular structure in such a manner so as to create a bow like structure at the front end which is perpendicular to the surface of the water in which the vessel floats.

63. (Original) The vessel in accordance with claim 62 wherein said means for sealing said front end further includes securing said front end mechanically.

64. (Original) The vessel in accordance with claim 62 wherein said means for sealing said rear end includes collapsing, folding, and sealing the rear end of the tubular structure.

65. (Original) The vessel in accordance with claim 64 wherein said means for sealing said rear end further includes securing said rear end mechanically.

66. (Original) The vessel in accordance with claim 64 wherein the rear end is in a plane and the front end is in a plane which is orthogonal to the rear plane.

67. (Currently Amended) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

- at least two elongated flexible tubular structures of woven seamless fabric;
- means for rendering said tubular structures impervious to water and other fluids having a density less than that of salt water;
- said tubular structures having a respective front end and a rear end;
- means for sealing said respective front end and said rear end;
- means for filling and emptying said vessel of cargo; ~~and~~
- means for connecting said tubular structures together in a series comprising a woven flat fabric woven seamless with said tubular structures and positioned there between, and

at least one flexible longitudinal stiffening beam positioned along the length of said tubular structures and subject to pressurization and depressurization by selective inflation and deflation with a pressurized gas or liquid.

68. (Original) The vessel in accordance with claim 67 wherein said means for filling and emptying comprises a tube woven seamless with said tubular structures allowing fluid communication therebetween.

69. (Original) The vessel in accordance with claim 68 wherein said means for filling and emptying further comprises a tube woven seamless to a respective front end of one of the tubular structures and a respective rear end of the other of the tubular structures.

70. (Original) The vessel in accordance with claim 67 wherein the tubular structures are pod shaped.

71. (Currently Amended) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

an elongated flexible tubular structure of woven seamless fabric;

means for rendering said tubular structure impervious;

said tubular structure having a front end and a rear end;

means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo;

and at least one flexible longitudinal stiffening beam positioned along a length of said tubular structure for dampening undesired oscillation of said tubular structure, said stiffening beam being maintained within a sleeve woven seamless with said tubular structure along a length thereof to reduce drag, and subject to pressurization and depressurization by selective inflation and deflation with a pressurized gas or liquid.

72. (Original) The vessel in accordance with claim 71 which includes a plurality of longitudinal stiffening beams and a plurality of sleeves.

73. (Original) The vessel in accordance with claim 72 which includes at least two longitudinal stiffening beams positioned equidistant from each other on the tubular structure which are maintained in respective sleeves.

74. (Original) The vessel in accordance with claim 72 wherein said stiffening beams are continuous and said sleeves are continuous.

75. (Withdrawn) The method in accordance with claim 53 which includes the step of providing a germicide or fungicide on the inside of the tubular structure

76. (Withdrawn) The method in accordance with claim 53 which includes the step of providing a UV protecting ingredient on the outside of the tubular structure.

77. (Cancelled).

78. (Cancelled).

79. (Cancelled).

80. (Previously presented) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

an elongated flexible tubular structure of woven fabric;

means for rendering said tubular structure impervious;

said tubular structure having a front end and a rear end;

means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo;

a plurality of longitudinal pockets integrally formed with said fabric containing respective longitudinal reinforcing elements positioned along a length of said tubular structure

for reinforcing said fabric and receiving a longitudinal force thereon; and wherein said fabric includes a plurality of circumferential pockets having respective circumferential reinforcing elements therein positioned about a circumference of the tubular structure and integrally formed therewith.

81. (Previously presented) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

an elongated flexible tubular structure of woven fabric;

means for rendering said tubular structure impervious;

said tubular structure having a front end and a rear end;

means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo;

a plurality of longitudinal pockets integrally formed with said fabric containing respective longitudinal reinforcing elements positioned along a length of said tubular structure for reinforcing said fabric and receiving a longitudinal force thereon; wherein said fabric is continuous and seamless; and wherein said fabric includes a plurality of circumferential pockets having respective circumferential reinforcing elements therein positioned about a circumference of the tubular structure and integrally formed therewith.

82. (Previously presented) A flexible fluid containment vessel for the transportation and/or containment of cargo comprising a fluid or fluidisable material, said vessel comprising:

an elongated flexible tubular structure of woven fabric;

means for rendering said tubular structure impervious;

said tubular structure having a front end and a rear end;

means for sealing said front end and said rear end;

means for filling and emptying said vessel of cargo;
a plurality of longitudinal pockets integrally formed with said fabric containing respective longitudinal reinforcing elements positioned along a length of said tubular structure for reinforcing said fabric and receiving a longitudinal force thereon; wherein said fabric is made in sections and joined together; and wherein said fabric includes a plurality of circumferential pockets having respective circumferential reinforcing elements therein positioned about a circumference of the tubular structure.